

REMARKS

Favorable reconsideration of this application, as amended, is respectfully requested.

At the outset, Applicants thank Examiner Grabowski for the courtesies extended to Applicants' representative during the informal interview conducted at the PTO on December 13.

The drawings were objected to under 37 C.F.R. § 1.84(p)(5) as either failing to include reference signs discussed in the Specification (i.e., Fig. 12), or vice-versa (i.e., Figs. 5 and 12). In response, the Specification has been amended accordingly, and Applicants submit that the drawing objection have been overcome.

Claims 16 and 21 were rejected under 35 U.S.C. § 112 for improper antecedence. In response, these claims have been amended to depend from Claim 15, and Applicants submit that the § 112 rejections have been overcome.

Claims 1–5, 10–16, 23–26, 28, 30–33, 35 and 36 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Maurer (US 4507346) in view of Heckenkamp (US 4988126), Claims 7, 8 and 34 were rejected as being unpatentable over Maurer in view of Heckenkamp and in further view of Boehm (US 2004/0239097), Claims 6, 17, 18, 20–22 and 29 were rejected as being unpatentable over Maurer in view of Heckenkamp and in further view of Solmsdorf (US 6082778) and Claims 9 and 27 were rejected as being unpatentable over Maurer in view of Heckenkamp and in further view of Adamczyk (US 2004/0050269).

Without acceding to the obviousness rejections, and in the interests of securing an expedited Notice of Allowance, Claims 1, 14 and 24 have been amended to recite, more perspicuously, a relief structure that includes cotton fibers. Support for this amendment may be found, for example, in the Substitute Specification in Paragraphs 0015 (Page 3), 0083 (Page 16), 0084 (Page 16), etc. No new matter has been added, and Applicants respectfully submit that none of the cited references, taken either singly or in combination, teaches or suggest all of the features recited by the claims.

Claims 1, 14 and 24 are directed to a document of value that has a security paper, a security paper and a method for producing a tangible marking in a document of value that includes a security paper, respectively, in which the security paper has at least one tangible marking in the form of a relief structure, including cotton fibers, that is produced by a laser. Applicants note that the claimed invention produces a relief structure in the paper itself, rather

than in an outer layer(s) of plastic laminate or foamable plastic material, as taught by the prior art. This inventive effect is achieved by adjusting the inscription parameters of the laser and the composition of the security paper, relative to one another, to produce a relief structure that includes cotton fibers.

Maurer discloses a multilayer identification card 1 that has a card inlay 10, "designated as security paper or of synthetic material," laminated between two transparent, thermoplastic cover films 11,12. *See*, FIG. 2; Col. 6:26–43; etc. Cover film 11 is "compounded with a physical or chemical blowing agent which causes foaming when heat is supplied so that cover film 11 exhibits in this area a relief 13 the height of which is dependent upon the amount of energy supplied" (Col. 6:31–35). The energy required for producing the relief structure by foaming is either absorbed directly by cover film 11, or, alternatively, by an additional absorption layer on card inlay 10, which then transfers the heat energy to the blowing agent in cover film 11. In either case, relief 13 is formed in the thermoplastic cover film 11 and not in the security paper of card inlay 10.

Consequently, Maurer fails to disclose a security paper that has at least one tangible marking in the form of a relief structure, including cotton fibers, that is produced by a laser, as recited by Claims 1, 14 and 24. The Office Action admits this deficiency,¹ and cites Heckenkamp in support of its obviousness rejection. Applicants disagree, and submit that neither Heckenkamp, nor any of the remaining references, cures Maurer's deficiencies.

Heckenkamp discloses an identity card 1 that has protruding peak areas 31 (relief structure) provided with luminescent substance 32 within a portion of card surface 30. *See*, e.g., FIG. 8; Col. 8:32–68; etc. Heckenkamp teaches that his relief structure is either mechanically or chemically formed on laminating plates or plate inserts, and then "introduced between the card [1] and the actual laminating plate," or, alternatively, that his relief structure is formed "directly on the document, paper of value, card ... in the outer surface e.g. using a random-controlled laser beam by melting, decomposition, evaporation of plastics or other materials. Similarly, one can locally foam foamable plastics materials, use appropriating printing techniques (steel intaglio printing, blinding techniques, etc.), vapor-metallize material, etc., to create structured surfaces which are then provided with a luminescent substance according to

¹ *See*, Office Action at Paragraph 11 (Page 5) ("Maurer teaches all of the limitations ... except for the material of the substrate in which the relief is created.").

the invention" (Col. 8:58–65). Importantly, while Heckenkamp's relief structure may be formed directly on the document, he clearly teaches that his relief structure is formed in the outer surface of this document. In the laser beam example cited above, Heckenkamp teaches that his outer surface is made of plastic, or similar material, that is removed through the action of the laser beam.

Consequently, Heckenkamp also fails to disclose a security paper that has at least one tangible marking in the form of a relief structure, including cotton fibers, that is produced by a laser, as recited by Claims 1, 14 and 24.

Notwithstanding these deficiencies, Applicants also disagree with the allegation that it would have been obvious to one of ordinary skill in the art to apply a laser to Maurer's paper "to minimize cost and undue complexity" (Office Action at Paragraph 12, Page 5). As discussed above, Maurer's relief 13 is produced by applying laser energy to thermoplastic cover film 11, which contains a foamable synthetic material, such as "a physical or chemical blowing agent." Maurer fails to suggest that his cover film 11 may be eliminated, or further, that his foamable synthetic material may be introduced into the paper substrate of card inlay 10. Accordingly, Applicants submit that the Office Action has failed to establish a *prima facie* case of obviousness. *See, e.g.,* MPEP § 2143.

Accordingly, Claims 1, 14 and 24 are allowable over the cited references. Claims 2–13, 15–23, and 32–34, depending from Claim 1, Claim 35, depending from Claim 14, and Claims 25–31 and 36, depending from Claim 24, are also allowable, at least for the reasons cited above.

Additionally, Applicants submit that the cited references fail to disclose many of the features recited by the dependent claims, which are, therefore, independently allowable. For example, neither Maurer nor Heckenkamp teaches or suggests a relief structure that has a relief height of 30 μm to 100 μm or 30 μm to 80 μm , as recited by Claims 5 and 33, respectively.² While Maurer discloses that his relief height can be precisely controlled by adjusting the dosage

² The Specification teaches that the relief height is dependent upon various parameters. *See, e.g.,* Paragraphs 21 and 22 (speed with which the laser is moved along the paper: "inscription speed"), Paragraph 024 (laser energy), Paragraph 045 (surface roughness of the substrate to be inscribed), Paragraphs 106 to 110 (laser power, exposure time, processing modus and modulation frequency of the laser, composition of the paper, moving speed), etc. *See*, Substitute Specification (clean version), filed on January 14, 2005.

of the laser energy, i.e., the intensity and period of radiation,³ he fails to teach or suggest the claimed relief height range. And with good reason -- Maurer's foamable synthetic layer is used for a completely different purpose, i.e., letter press printing, than the claimed invention, i.e., a tangible marking. Heckenkamp similarly fails to teach or suggest the claimed relief height range, and merely discloses that his relief structure has an "irregular, random character" (Col. 8:42-43).

In view of the foregoing amendment and remarks presented herein, Applicants respectfully submit that this application is in condition for allowance and should now be passed to issue.

A Notice of Allowance is respectfully solicited.

If any extension of time is required in connection with the filing of this paper and has not been requested separately, such extension is hereby requested.

The Commissioner is hereby authorized to charge any fees and to credit any overpayments that may be required by this paper under 37 C.F.R. §§ 1.16 and 1.17 to Deposit Account No. 02-2135.

Respectfully submitted,

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³ See, e.g., Col. 5:26-28.